Applicant : Richard Meyer et al.
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REMARKS

The Applicants appreciate the Examiner's careful consideration of the instant case and presentation of the cited references. However, after reviewing the cited art the Applicant respectfully submits as indicated below that aspects of the present invention are patentably distinct and in condition for allowance.

Claims: Claims 1–28 were rejected under 35 U.S.C § 102(e) as being anticipated by United States Patent Publication 2002/0007445 to Blumenau et al. (hereinafter "Blumenau").

In general, Blumenau concerns problems associated with limiting host access to storage devices connected over a fibre channel (FC) network. (Abstract) It adds a level of access control using the existing FC standard protocol and, in particular, uses the WWN or nodename assigned at manufacture to host controller (paragraph 0077) Indeed, even if a host controller fails and is replaced; the new nodename assigned at manufacture to the new host controller is registered with the access control scheme in Blumenau and the old nodename in the system from the failed host controller is replaced. (paragraph 0082, 00107).

Unlike the host controller, Blumenau does not mention using the nodename from a storage controller to limit or restrict access to one or any ports available on the system. (paragraph 0081). Blumenau purposely does not limit any host from accessing any storage controller or port in the FC network to keep the system flexible. For example, this generally allows any host to access any port on the network allowing for port independence (paragraph 0081) but also allows for load balancing and redundant access paths. (paragraph 0086, 0175) This arrangement also makes sense since limiting access to any ports on the network would violate the FC network protocol. (pargraph 0118)

Access control in Blumenau essentially works as follows. First, a system administrator creates a volume access table 82 as illustrated in Fig. 5 that includes a volume group name, a host controller port WWN (i.e., the nodename), a host controller port S_ID (source address), a private/shared flag and a pointer to a volume list. (paragraph 0081) Details of this process are outlined in Fig. 7 to 10. Essentially, the system administrator enters the nodename of each host controller and defines a volume group name that generally reflects the name of the host (i.e., Host22-1) having access to the associated storage devices vis a vis the volume list pointer. (paragraph 0079). According to Blumenau, the volume group name made up by the system administrator is the one stable and unique identification in the system while the S_ID changes each time the system boots and the nodename changes when there is a controller swapped out.

Next, the host controller on a host logs into the fabric to get access to the volume group and storage devices assigned to the host. (paragraph 0081) Each host controller transmits its respective nodename or volume group name during the fabric login process. A name server or other component will assign a temporary S_ID that is shorter than the nodename (paragraph 0069) to the host controller and it is also entered into the volume access table 82. (paragraph 0071, 0072, 0082) Both the host controller and the storage controllers have a copy or version of the volume access table 82 to limit access to certain assigned volume groups. For example, the limited set of volumes accessible to the host controller are defined in a vector stored on the host controller and define a 'disk spread'. (Abstract, paragraph 0076, 0085) Likewise, the host may attempt to access certain storage volumes but the storage controller will refer to the volume access table 82 or derivative copies thereof to ensure restricted data from the storage volumes is not given to the host controller. (paragraph 0010)

In view of the description of Blumenau above and our remarks below, the Examiner has not established the prima facie case as each and every element of independent claim 1 are not taught by the cited reference. See Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2D (BNA) 1913, 1920 (Fed. Cir.), cert. denied, 493 U.S. 853, 107 L. Ed. 2d 112, 110 S. Ct. 154 (1989) (explaining that an invention is anticipated if every element of the claimed invention,

including all claim limitations, is shown in a single prior art reference). See Jamesbury Corp. v. Litton Industrial Products, Inc., 756 F.2d 1556, 1560, 225 USPQ 253, 256 (Fed. Cir. 1985) (explaining that the identical invention must be shown in as complete detail as is contained in the patent claim). See Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 U.S.P.Q.2D (BNA) 1051, 1053 (Fed. Cir. 1987) (explaining that a prior art reference anticipates a claim only if the reference discloses, either expressly or inherently, every limitation of the claim). See Kloster Speedsteel AB v. Crucible, Inc., 793 F.2d 1565, 1571, 230 U.S.P.Q. (BNA) 81, 84 (Fed. Cir. 1986) ("Absence from the reference of any claimed element negates anticipation.")

Unfortunately, Blumenau deals with controlling access to storage using FC protocol but does not deal with the networking or topographical component of FC. As previously pointed out, Blumenau's detailed description of managing access to storage by a host controller does not allude to any method for adding one or more storage controller nodes in a storage area network as provided in the preamble of Claim 1.

Specifically, Blumenau does not describe, teach or suggest, "receiving a storage controller node to add to a logical storage controller in the storage area network having a logical nodename and a sequence of logical ports" as recited in claim 1. Paragraph 007 of Blumenau describes limiting a host's access to certain logical volumes of a storage system by limiting access to certain

ports of a storage system – this approach is considered prior art in Blumenau. It also describes "establishing a link between any of the hosts and any of the port adapters" in paragraph 007 but this also does not operate to "add a logical storage controller in the storage area network having a logical nodename" to another storage controller.

In comparison, paragraph 0121 describes "virtual ports" but these are also not used to add logical storage controllers together. Instead, the "virtual ports" are used to operate a switching protocol to redirect traffic received over a physical port to a virtual port in order to limit access to certain storage devices. Specifically, certain logical volumes are only accessible through certain virtual ports operating as virtual switches for access control. (paragraph 0116)

Further, Blumenau does not teach, suggest or mention "adopting the logical nodename from the logical storage controller in place of the predetermined nodename associated with the storage controller" as also recited in claim 1. In fact, Blumenau mentions many times that the predetermined nodename for each host controller assigned by the factory is unique and does not change. It is because the nodename for each host controller is immutable that the access control scheme in Blumenau works at all. (paragraph 0081) Moreover, paragraph 0081 in Blumenau only mentions the host controller in conjunction with any reference to the WWN or nodename. Mention of

"adopting the logical nodename from the logical storage controller in place of the predetermined nodename" does not appear to be described.

Adopting the logical nodename from the logical storage controller (or even the host controller) in place of the predetermined nodename associated with the storage controller would cause unknown or fatal results in Blumenau. For example, every WWN or nodename entry in the volume access table 82 in Fig. 5 is a unique value. If there were duplicate WWN or nodename entries in the volume access table 82 then it would not be possible to restrict hosts from viewing or seeing certain volume groups as there would be an inherent conflict in the operation.

Finally, Blumenau also does not teach or suggest, "renumbering a set of ports associated with the storage controller to extend the sequence of logical ports associated with the logical storage controller" as recited in claim 1. For the reasons provided above, paragraph 0081 does not describe detailed operations concerning the storage controller but instead the host controller. Even if they were considered similar, there is nothing in paragraph 0081 that teaches or suggests renumbering the ports. Applicants respectfully submit that these limitations are not described implicitly, explicitly or inherently in Blumenau as suggested in the instant office action.

In summary, Blumenau describes detailed methods for controlling access to storage over a FC network but does not describe changing the topology of the FC network. Even if the topology

were described at some level (which does not appear to be the case), having a storage controller adopt a logical nodename from a logical storage controller would render Blumenau non-functional for its intended purpose.

Applicant respectfully submits after many hours of reviewing Blumenau, none of these limitations are to be found. If Examiner believes that Blumenau teaches each and every element of Claim 1 that these limitations are pointed out with particularity. Otherwise, we would respectfully request that the Examiner withdraw the rejections for failing the "all elements rule" as required by 35 U.S.C § 102 and the MPEP and allow claim 1. Independent claims 13, 15 and 27 are also in condition for allowance for at least the same reasons described with respect to claim 1.

Further, Claims 2-12, 14,16-26 and 28 are not only allowable on their own but also allowable by virtue of their dependency directly or indirectly on independent claims 1, 13, 15 and 27.

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Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Leland Wiesner, Applicants' Attorney at (650) 853-1113 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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Date

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